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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,509	04/16/2004	Steven Bailey	MS304069.01 / MSFTP620US	1955
27195 7590 01/18/2007 AMIN. TUROCY & CALVIN, LLP 24TH FLOOR, NATIONAL CITY CENTER 1900 EAST NINTH STREET CLEVELAND, OH 44114			EXAMINER EHICHIOYA, FRED I	
			ART UNIT 2162	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/18/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/826,509

Applicant(s)

BAILEY ET AL.

Examiner

Fred I. Ehichioya

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the communication filed August 18, 2004.
2. Claims 1 – 18 are pending in this Office Action.

Claim Objections

3. Claims 21 and 36 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1 - 36 are rejected under 35 U.S.C. 101 because:

(i) Regarding claims 1 and 10, these claims are directed to database engine. The claimed subject matter lacks a practical application of judicial exception (law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to produce a useful result. Specifically, the claimed subject matter does not produce a useful result because the claimed subject matter fails to disclose a complete disclosure that contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful. Such a statement will usually explain the purpose of the invention or how the invention may be used (e.g., a compound is

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believed to be useful in the treatment of a particular disorder). Regardless of the form of statement of utility, it must enable one ordinarily skilled in the art to understand why the applicant believes the claimed invention is useful. More specifically, the claimed subject matter provides for **"the data page copied by transaction(s) that requires modification thereof"**. This produced result remains in the abstract and, thus, fails to produce a useful result.

(ii) Regarding claims 13, 21, 22 and 29, these claims are directed to synchronization in concurrent transactions. The claimed subject matter lacks a practical application of judicial exception (law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to produce a useful result. Specifically, the claimed subject matter does not produce a useful result because the claimed subject matter fails to disclose a complete disclosure that contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful. Such a statement will usually explain the purpose of the invention or how the invention may be used (e.g., a compound is believed to be useful in the treatment of a particular disorder). Regardless of the form of statement of utility, it must enable one ordinarily skilled in the art to understand why the applicant believes the claimed invention is useful. More specifically, the claimed subject matter provides for **"tracking a space availability for data page over all concurrent transactions"**. This produced result remains in the abstract and, thus, fails to produce a useful result.

(iii) Regarding claim 24, this claim is directed to computer executable component that operates across a plurality of active transactions to obtain information on a space

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change for a data page. The claimed subject matter lacks a practical application of judicial exception (law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to produce a useful result. Specifically, the claimed subject matter does not produce a useful result because the claimed subject matter fails to disclose a complete disclosure that contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful. Such a statement will usually explain the purpose of the invention or how the invention may be used (e.g., a compound is believed to be useful in the treatment of a particular disorder). Regardless of the form of statement of utility, it must enable one ordinarily skilled in the art to understand why the applicant believes the claimed invention is useful. More specifically, the claimed subject matter provides for **"the data page copied by transaction that requires modification thereof"**. This produced result remains in the abstract and, thus, fails to produce a useful result.

Claim 24 is directed to program per se. When the computer programs claimed as computer listings per se, i.e., the descriptions or expressions of the programs are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer that permit the computer program's functionality to be realized (MPEP 2106.01 [R-5] (I)). Merely amending the claim(s) to supply an appropriate medium is insufficient under USPTO policy to provide a fully patent-eligible claim under 35 USC 101.

(iv) Regarding claims 31 and 36, these claims are directed to manipulating data in a data page by transaction. The claimed subject matter lacks a practical application of judicial exception (law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to produce a useful result. Specifically, the claimed subject matter does not produce a useful result because the claimed subject matter fails to disclose a complete disclosure that contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful. Such a statement will usually explain the purpose of the invention or how the invention may be used (e.g., a compound is believed to be useful in the treatment of a particular disorder). Regardless of the form of statement of utility, it must enable one ordinarily skilled in the art to understand why the applicant believes the claimed invention is useful. More specifically, the claimed subject matter provides for **“determining an aggregate size change for the data page”**. This produced result remains in the abstract and, thus, fails to produce a useful result.

The claimed invention does not accomplish a “useful result” as forth in MPEP 2106 (II) (A).

Regarding claims 2, 8 and 14, and in view of MPEP 2106 (II) (A), are not statutory because they recite computing steps without producing any concrete and useful result and/or being limited to a practical application within the technological arts. The claims are merely descriptive and lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. The claims

do not accomplish a "practical application" as forth in MPEP 2106 (II) (A); therefore non-statutory.

Regarding claims 2 – 9, 11 – 12, 14 – 20, 23, 25 – 28, 30 and 32 - 34, and in view of MPEP 2106 (II) (A), are not statutory because they recite computing steps without producing any concrete and useful result and/or being limited to a practical application within the technological arts. The claims are merely descriptive and lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. The claims do not accomplish a "practical application" as forth in MPEP 2106 (II) (A); therefore non-statutory.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, and 13 - 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Miloushev at al., "Miloushev" U.S Patent No. 6,889,249.

Regarding claims 1, Miloushev discloses a database engine comprising:

a page aggregator (column 6, lines 29 – 31) component that operates across concurrent transactions (column 21, lines 31 – 38) to obtain information on an aggregate size change that occurs on a data page (column 17, lines 21 – 24); the data page is copied by transaction(s) that requires modification thereof (column 34, lines 60 – 63).

Regarding claims 13 and 21, Miloushev discloses a method that facilitates synchronization in concurrent transactions comprising:

obtaining information on an aggregate size change that occur on a data page as a result (column 28, lines 61 – 67) of concurrent transactions operating on respective copies of the data page (column 17, lines 21 – 24); and

tracking a space availability for the data page over all the concurrent transactions (column 28, lines 61 – 67).

Regarding claim 14, Miloushev discloses assigning locks to a resource on the data page (column 36, lines 38 – 51).

Regarding claim 15, Miloushev discloses modifying the data page (column 22, lines 18 – 25).

Regarding claim 16, Miloushev discloses replacing a row with an inserting pointer (column 9, lines 25 – 30).

Regarding claim 17, Miloushev discloses inserting the row on a new page (column 9, lines 35 – 40).

Regarding claim 18, Miloushev discloses storing the information in the locks (column 36, lines 25 – 26).

Regarding claim 19, Miloushev discloses discarding the locks upon a roll back of a transaction (column 38, lines 46 – 58).

Regarding claim 20, Miloushev discloses discarding the locks upon committing a transaction (column 37, line 65 – column 38, line 2).

Regarding claim 22, Miloushev discloses a system for facilitating synchronization in concurrent transactions comprising:

means for obtaining information on an aggregate size change that occur on a data page during modifications thereof (column 28, lines 61 – 67) by concurrent transactions (column 21, lines 31 – 38); and

means for tracking a space availability for the data page over all the concurrent transactions (column 28, lines 61 – 67).

Regarding claim 23, Miloushev discloses means for assuring availability of space on a data page prior to a commit stage of a transaction operating on the data page (column 28, lines 61 – 67).

Regarding claim 24, Miloushev discloses a computer-readable medium having stored thereon a data structure comprising:

a computer executable component that operates across a plurality of active transactions to obtain information on a space change for a data page (column 17, lines 21 – 24), the data page being copied by an active transaction that requires a modification thereof (column 34, lines 60 – 63).

Regarding claim 25, Miloushev discloses computer executable component that tracks an availability of space for the data page based on the information (column 28, lines 61 – 67).

Regarding claim 26, Miloushev comprising an additional computer executable component that administers logical considerations during data modification on the data page (column 34, lines 60 – 63).

Regarding claim 27, Miloushev discloses the additional computer executable component grants locks at a row level of the data page (column 36, lines 38 – 51).

Regarding claim 28, Miloushev discloses a forwarding pointer device that guides a query to a new location of data (column 21, lines 31 – 38).

Regarding claim 29, Miloushev discloses a system for facilitating synchronization in concurrent transactions comprising:

means for determining logical permission to insert a row on a data page during modifications thereof (column 9, lines 35 – 40) by concurrent transactions (column 21, lines 31 – 38); and

means for determining a space availability for the data page over the concurrent transactions (column 28, lines 61 – 67).

Regarding claim 30, Miloushev discloses means for mitigating reorganization of data mound the data page at the commit stage of the concurrent transactions (column 37, line 65 – column 38, line 2).

Regarding claims 31 and 36, Miloushev discloses a method for manipulating data in a data page by a transaction comprising:

copying a data page to a reserved space for the transaction (column 21, lines 59 – 65); and

determining an aggregate size change for the data page (column 28, lines 61 – 67).

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Regarding claim 32, Miloushev discloses tracking space availability on the data page across a plurality of concurrent transactions working on the data page (column 28, lines 61 – 67).

Regarding claim 33, Miloushev discloses creating a new page and inserting a row therein (column 9, lines 35 – 40).

Regarding claim 34, Miloushev discloses employing a pointer in the data page to guide a query to the row in the new page (column 9, lines 25 – 30).

Regarding claim 35, Miloushev discloses locking a resource at a row level on the data page (column 36, lines 38 – 51).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2 - 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miloushev in view of US Patent No. 6,643,753 issued Avner et al. "Avner".

Regarding claim 2, Miloushev disclose the claimed subject matter as discussed in claim 1, Miloushev does not explicitly disclose heap allocation as claimed.

Avner discloses a heap allocation component that employs the information to determine an availability of space for the data page (column 11, lines 1 – 6).

It would have been obvious to one of ordinary skills at the time of present invention to combine cited references because Avner's teaching of "heap allocation" would have allowed Miloushev's system to permits allocations within heaps even if one or more heaps are currently locked. This increases the efficiency of virtual memory usage and reduces the risk of virtual memory fragmentation as suggested by Avner (Summary).

Regarding claim 3, Miloushev discloses a lock manager that enables sub page level locking across concurrent transactions (column 37, lines 37 – 42).

Regarding claim 4, Miloshev discloses each of the concurrent transactions modifies a respective copy of the data page (column 22, lines 18 – 25).

Regarding claim 5, Miloushev discloses the page aggregator component enables a determination of space consumptions (column 28, lines 61 – 67) across a respective copy of data page employed by each transaction (column 21, lines 59 – 65).

Regarding claim 6, Miloushev discloses the page aggregator component determines the space consumption across the respective copy from information available in the lock manager (column 29, lines 5 – 18).

Regarding claim 7, Miloushev discloses the sub page level locking is a row level locking (column 36, lines 38 – 51).

Regarding claim 8, Avner discloses the heap allocation component tracks an availability of space on the data page (column 10, lines 50 – 65).

Regarding claim 9, Avner discloses the heap allocation component and the page aggregator component enforce a set of conditions on a transaction that operates on the data page, such that a space availability for the data page prior to the commit stage of the transaction is assured (column 10, lines 44 – 49).

Regarding claim 10, Miloushev discloses a database engine comprising:
a page aggregator (column 6, lines 29 – 31) that works across concurrent transactions (column 21, lines 31 – 38) that perform sub-page level operations on a data page (column 6, lines 29 – 31).

Miloushev does not explicitly disclose a heap manager.

Avner discloses a heap manager that tracks space availability for the data page via information supplied by the page aggregator (column 9, lines 12 – 17).

It would have been obvious to one of ordinary skills at the time of present invention to combine cited references because Avner's teaching of "heap manager" would have allowed Miloushev's system to permits allocations within heaps even if one or more heaps are currently locked. This increases the efficiency of virtual memory usage and reduces the risk of virtual memory fragmentation as suggested by Avner (Summary).

Regarding claim 11, Miloushev discloses each of the concurrent transactions modify a respective copy of the data page without consuming all space available on the data page (column 22, lines 18 – 25).

Regarding claim 12, Miloushev discloses a lock manager that facilitates compatibility of operations across the concurrent transactions (column 37, lines 37 – 42).

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Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred I. Ehichioya whose telephone number is 571-272-4034. The examiner can normally be reached on M - F 8:00 AM to 4:30 PM.

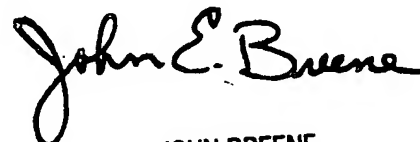
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on 571-272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Fred I. Ehichioya
Patent Examiner
Art Unit 2162



January 8, 2007



JOHN BREENE
SUPERVISORY PATENT EXAMINER
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